

Notice of Allowability

Application No.

10/562,425

Examiner

Sanh D. Phu

Applicant(s)

FERRATO ET AL.

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed on 4/2/2007.
2. ☒ The allowed claim(s) is/are 21-52.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 4/2/07.

Accordingly, claims 21–52 are currently pending; and claims 1–20 are canceled.

REASONS FOR ALLOWANCE

2. Claims 21–52 are allowed.
3. The following is an examiner's statement of reasons for allowance:
 - Regarding to independent claims 21 and 40, none of prior art of record teaches or suggests a method comprising procedures of serving communication traffic by at least one reconfigurable antenna having a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, each direction in said set defining a propagation path between the antenna and a portion of a coverage area; and selectively and independently allotting to each direction in said set a respective gain value in the radiation diagram of said reconfigurable antenna as a function of at least one of traffic value and of said attenuation value determined for said direction.
 - Regarding to independent claim 34, none of prior art of record teaches or suggests a network architecture for a communication network comprising: at

least one reconfigurable antenna adapted to serve communication traffic, wherein said at least one reconfigurable antenna has a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, and wherein each direction in said set defines a propagation path between the antenna and a portion of a coverage area, and has associated at least one value of communication traffic and at least one attenuation value over said propagation path, and a respective gain value for said radiation diagram which is a function of at least one of said traffic value and of said attenuation value.

—Regarding to independent claims 41 and 52, none of prior art of record teaches or suggests a method comprising procedures of serving communication traffic by at least one reconfigurable antenna having a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, each direction in said set defining a propagation path between the antenna and a portion of a coverage area, each portion including a plurality of pixels, wherein each pixel has an associated value of communication traffic and a propagation path from said antenna with an associated attenuation value; determining, for each direction in said set, a reference attenuation value over

the propagation path defined by the direction, said reference attenuation value depending on a benefit/cost ratio for the pixels included in said portion, said benefit/cost ratio being a ratio between said communication traffic value and said attenuation value in each said pixel; determining a maximum attenuation value of said reference attenuation values associated with each direction; determining a maximum gain value of said radiation diagram of said at least one reconfigurable antenna in said coverage area; associating said maximum gain value with the direction having said maximum attenuation value; and determining for the other directions a respective gain value in the radiation diagram of said reconfigurable antenna based on the maximum gain value, the maximum attenuation value and the reference attenuation values.

—Regarding to independent claim 46, none of prior art of record teaches or suggests a method comprising procedures of determining a reference amount of traffic served by a plurality of antennas in a network; setting at least one difference threshold with respect to said reference amount of traffic; identifying among said plurality of antennas a subset of antennas, wherein the respective amounts of traffic served by the antennas in said subset reach said

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difference threshold; configuring the antennas in said subset as reconfigurable antennas, each having a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, each direction in said set defining a propagation path between the antenna and a portion of said coverage area; and applying to the reconfigurable antennas in said subset the following steps to reconfigure said network: determining, for each direction in said set, a reference attenuation value over the propagation path defined by the direction; and determining a maximum attenuation value of said reference attenuation values associated with each direction.

—Regarding to independent claim 50, none of prior art of record teaches or suggests a network architecture comprising: at least one reconfigurable antenna adapted to serve communication traffic wherein said at least one reconfigurable antenna has a radiation diagram exhibiting a plurality of selectively adjustable gain values for a set of directions, and wherein each direction in said set defines a propagation path between the antenna and a portion of a coverage area, said portion including a plurality of pixels, wherein each pixel has an associated value of communication traffic and a propagation

path from said antenna with an associated attenuation value, and has associated a reference attenuation value over the propagation path defined by the direction, said respective gain value being determined based on a maximum attenuation value of said reference attenuation values associated with each direction in said coverage area and the maximum gain value of said radiation diagram of said at least one reconfigurable antenna associated with the direction having said maximum attenuation value.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanh D. Phu whose telephone number is (571)272-7857. The examiner can normally be reached on M-Th from 7:00-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sanh D. Phu
Patent Examiner
Division 2618

SANH D. PHU
PATENT EXAMINER

5/16/07
